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US Patents (# 5791693)

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March 8, 2004

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Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

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If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

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*Bence Lehman*

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Attest



US005791693A

# United States Patent [19]

Crawford

[11] Patent Number: 5,791,693  
[45] Date of Patent: Aug. 11, 1998

[54] PUP JOINT WITH INTEGRAL WING NUT  
RETENTION SHOULDER

[75] Inventor: Paul A. Crawford, Stephenville, Tex.

[73] Assignee: FMC Corporation, Chicago, Ill.

[21] Appl. No.: 962,182

[22] Filed: Oct. 31, 1997

## Related U.S. Application Data

[63] Continuation of Ser. No. 651,646, May 22, 1996, abandoned.

[51] Int. Cl.<sup>6</sup> ..... F16L 19/025

[52] U.S. Cl. .... 285/23; 285/354; 285/387;  
285/388

[58] Field of Search ..... 285/23, 354, 386,  
285/387, 388, 321

## [56] References Cited

### U.S. PATENT DOCUMENTS

1,186,021	6/1916	Mezger	285/388
2,298,109	10/1942	Frank	285/388
3,751,077	8/1973	Hiszpanski	285/386
4,116,477	9/1978	Wahoski	285/386

4,124,234	11/1978	Clark	285/388
4,575,044	3/1986	Gentry	285/388
4,648,634	3/1987	Kelch	285/387
4,877,270	10/1989	Phillips	285/387
5,160,174	11/1992	Thompson	285/387
5,362,109	11/1994	Pacnt	285/388

## FOREIGN PATENT DOCUMENTS

723284	3/1980	U.S.S.R.	285/387
17810	1/1914	United Kingdom	285/387

Primary Examiner—Eric K. Nicholson  
Attorney, Agent, or Firm—Henry C. Query, Jr.

## [57] ABSTRACT

A pup joint is provided which comprises a length of pipe, a female sub integral with one end of the pipe and having external threads formed thereon, a male sub integral with the other end of the pipe, a wing nut for threadedly connecting the male sub to the female sub, a set of retainer segments for retaining the wing nut on the pup joint, and a retention shoulder formed on the male sub to maintain the wing nut and retainer segments on the male sub. In a preferred embodiment of the invention, the pipe and the male and female subs are comprised of a single forging, and the retention shoulder is formed by machining the male sub.

3 Claims, 2 Drawing Sheets

